PATENT ABSTRACTS OF JAPAN

(11)Publication number:

05-039428

(43)Date of publication of application: 19.02.1993

(51)Int.Cl.

CO8L101/10 CO8K 5/09

(21)Application number: 03-219271

CO8L 71/02

(22)Date of filing: 06.08.1991 (71)Applicant : ASAHI GLASS CO LTD

(72)Inventor: YANASE KIYOKO WATABE TAKASHI

OZAWA SHIGEYUKI

(54) ROOM TEMPERATURE-CURABLE COMPOSITION

PURPOSE: TO provide a composition suitable as a sealing agent and curable in rubber-like state by water content

CONSTITUTION: A room temperature-curable composition comprises (A) a hydrolyzable silicon group-containing polymer containing a hydrolyzable silicon group obtained by introducing SiCH3 (OCH3)2 group to the ends of a linear polyoxypropylenepolyol which is obtained by adding propylene oxide to an initiator such as glycerol and an organic carboxylic acid salt of bismuth compound of 1 pts.wt. based on 100 pts.wt component A, and a room temperature- curable composition further added thereto 0.3 pts.wt, caprylic acid or lauric amine. A cured product having excellent elongation is obtained therefrom

* NOTICES *

damages caused by the use of this translation. JPC and INPIT are not responsible for any

This document has been translated by computer. So the translation may not reflect the original

2 *** shows the word which can not be translated. 3.1n the drawings, any words are not translated.

CLAIMS

even if small per one molecule of polymers, and a room-temperature-curing nature constituent which contains ten or less weight sections of bismuth compounds (B) to (A)100 weight section. Glaim 1]A hydrolytic sillicon group content polymer (A) which contains one hydrolytic silicon group

waight sections and (A)100 weight section to 100 weight sections. [Claim 3]A room-temperature-curing nature constituent of claim 1 or claim 2 whose hydrolytic silicon [Olaim 2]A hydrolytic silicon group contrant polymer (A) which contains one hydrolytic silicon group even if small per one molecule of polymers, (A) A room-temperature-curing nature constituent which contains acid or ten or less weight sections of alkalis (C) for a bismuth compound (B) to ten or less

group is a silkoon functional group expressed with following general formula. $-SX_k R_{2k-a}$ (as for a univalent hydrocarbon group or a halogemated hydrocarbon group, and X, in the nised of different end hydrocycle basis and a are the integers of 1, 2, or 3)

Claim 4]A room-temperature-curing nature constituent of claim 1 or claim 2 whose hydrolytic silicon [Claim 6]A room-temperature-curing nature constituent of claim 5 whose organic-carboxylic-acid [Claim 5]A room-temperature-curing nature constituent of claim 1 or claim 2 whose bismuth group content polymers are the molecular weights 2000-50000. compound is an organic-oarboxyllc-acid saft of bismuth.

Claim 8]A room-temperature-curing nature constituent of claim 2 whose alkali is organic amine.

salt of bismuth is bismuth tris (2-cthylhexoate) or bismuth tris (neo decanoate). [Claim 7]A room-temperature-curing nature constituent of claim 2 whose acid is organic carboxylic

Translation done,]

lamages caused by the use of this translation. PO and INPIT are not responsible for any

This document has been translated by computer. So the translation may not reflect the original

2**** shows the word which can not be translated. In the drawings, any words are not translated.

DETAILED DESCRIPTION

Detailed Description of the Invention

Industrial Application I This invention relates to the room-temperature-curing nature constituent containing a hydrolytic silicon group content polymer. Description of the Prior ArtJIF exposed into 4 air moisture, the compound of the silicon functional group content organicity polymer which can be herdened to a rubber-like aubstance is used for a sealing material's etc. use.

'0003]On the other hand, it is already known that a bismuth compound is affective as a catalyst of

For example, it is indicated to JP,61-235420,A.

However, the example used as a ouring catalyst of a hydrolytic silicon group content polymer is not

Problem(s) to be Solved by the Invention] As a catalyst which stiffens a hydrolytic silicon group enown until now.

patalyst of tin and lead. However, these catalysts are catalysts suitable for urethane production, and hardened material obtained when it is used as a curing catalyst of a hydrolytic silicon group content are not enough, and development of a new curing catalyst is desired. [of the elongation of the content polymer at a room temperature conventionally, it is common to use the organic metal

ydrolytic allicon group even if this invention is made that the above-mentioned problem should be constituent which contains ten or less weight sections of bismuth compounds (B) to (A)100 weight Means for Solving the Problem]A hydrolytic silicon group content polymar (A) which contains one colved and it is small per one molecule of polymers, And a room-temperature-curing nature

0006]A hydrolytic silicon group content polymer (A) which contains one hydrolytic silicon group even there is little this invention per one molecule of polymers again, (A) Provide a room-temperaturecuring nature constituent which contains acid or ten or less weight sections of alkalis (C) for a oismuth compound (B) to ten or less weight sections and (A)100 weight section to 100 weight

examination. Elongation is improved and a hardenability constituent which uses a bismuth compound curing catalyst in a room temperature of a hydrolytic silicon group content polymer as a result of 0007]This time, it newly became clear that a bismuth compound was dramatically effective as a as a curing catalyst also has few problems of safety.

0008]A reactant with organic carboxylic acid which it has 8-12 pieces preferably [bismuth salt sarbon numbers] is raised. Specifically, there are bismuth tris (neo docanoats), bismuth tris (2which is indicated to JP.61-235420,A as a bismuth compound used by this invention, and 2-20 sthylhexoate), etc.

0010]In this invantion, although a bismuth compound may be used indapandently, it can also be used 0000]The amount of bismuth compound used has ten or lass weight sections of 0.01 to 3 especially preferably preferred weight sactions 0.01 to 5 weight section.

ttp://www4.ipdl.inpit.go.jp/ogi-bin/tran_web_ogi_ejje?atw_u=http%3A%2F%2Fwww4.ipdli... 2010/03/03

ogether with acid or an alkali. Concomitant use with acid or an alkali has a hardaning facilitatory

JP,05-039428,A [DETAILED DESCRIPTION]

suitable for especially the amount used to a hydrolytic allicon group contant polymer. It is 0.01 to 3 effect. When using acid or an alkali, ten or less weight sections of 0.001 to 5 weight sections are weight section most preferably.

[0011]Especially although organic acid or inorganic acid can be used as acid, an organic carboxylic ntrobenzoic acid can usually use organic carboxylic acid of the carbon numbers 1-20. Solid acid stearic acid, citrate, chloroacetic acid, acrylic acid, methacrylic acid, m-nitrobenzolc acid, or poold compound is praferrad. For axample, acetic sold, propionic sold, caproic sold, caprylic sold, such as olay and aluminum silicate, can be used as inorganic acid,

Diethanolamine, N.N.N'-tetramethyl 1.3-butanediamine, Benzylamine, dimethylethylonediamine, dimethylamino ethanol, N.N.'N'-tetramethylethylenediamine, triethylamine, N.N-dimethylaniline, diethylenetriamine, Triethylenetetramine, tetraethylenepantamine, a butylamine, Hexylamine, octylamine, decyl amine, lauryl amine. Hexamethylenediamine, triethanolamine, dibutyl amine 0012]Especially as an alkali, an organic amine compounds is preferred, and For example

0013]As a hydrolytic silicon group content polymer of this invention, various polymers which have polyether or polyester intrinsically can be used. A compound specifically indicated in the following one or more hydrolytic silicon groups among one molecule and in which a main chain consists of dimethylbenzyl aniline, etc. can be used. iterature is mentioned,

group into JP,46-12514,B, JP,3-47825,A, and JP,3-72527,A by a method which is stated to an end of 0014]For example, a hydrolytic silicon group content polymer which introduced a hydrolytic silicon [0015]A polymer of polygycol which has at the end the hydrolytic silicon group which combined a polyoxyalkylene compound balow is indicated.

[0016]To JP,3-79627,A, what introduced a hydrolytic silicon group into a copolymer of monoepoxide, such as alkylene oxide, and unsaturation machine content monoepoxide, such as alkyl glycidyl ether, is JP,45-36319,B by specific bond groups, or a polyester system is indicated.

connection with application of these people) of the molecular weights 300-30000 can be used with a polybutadiene. To a polymer obtained, a hydrolytic silicon group. A hydrolytic silicon group content polymer chain which main chains, such as what was introduced, have the residue of liquid rubber polymer (refer to the Japanese-Patent-Application-No. No. 110588 [two to] specification in [0017] Furthermore, Alkylene oxide, such as propylene oxide, is added to hydroxyl group and

hydrolytic silicon group content polymer introduces a hydrolytic silicon group into a compound which polyoxyalkylene chain intrinsically or has polyoxyalkylene chain in a side chain is preferred. A [0018]As for a main chain of a hydrolytic silicon group content polymer, what consists of and/or hydrogenation liquid rubber, and has a polyether chain.

alitylene oxide, etc. are made to react to initiatore, auch as a polyhydroxy compound which has at less one hydroxyl group under axiatence of catalysts, such as an alkaline metal catalyst, a composite group number of a compound which has polyoxyalkylene ohain, two or more are preferred, and 2 or 3 [0019]Polyoxyalkylena chain of a compound which has polyoxyalkylane chain, Monoepoxide, such as metal cyanide complex catalyst, and metalloporphyrin, and it is manufactured. As for a functional has such polyoxyalkylene chain and has a functional group, and is manufactured. is especially preferred.

two pieces or three hydroxyl groups. Specifically, it is a propylene oxide adduct of polyoxypropylene diol, polyoxypropylene triol, liquid rubber, and/or hydrogenation liquid rubber, etc. [0021]When using for a method of following (1), a polyoxyalkylene compound of olefin ends, such as 0020] Especially a destrable compound is a compound which has a polyoxypropylene chain and has 0022]As a hydrolytic silicon group introduced into a compound which has the above-mentioned polyoxyalkylene chain, a silyl group expressed with a general formula (a) is good. an allyl end polyoxypropylene monocar, can also be used.

group, and eight or less carbon number is six or less alkyl group and a fluoro alkyl group preferably They ere low-grade alkyl groups, such as a methyl group and an athyl group, especially preferably. .0024]X is a hydrolytic basis, for example, there are a halogen atom, an alkoxy group, an acyloxy 0023]The insida R of a formula is a univalent hydrocarbon group or a halogenated hydrocarbon - SiX_BR₃₋₃ ... (a)

http://www4.ipdl.inpit.go.jp/egi-bin/tran_web_egi_ejje?atw_u=http%3A%2F%2Fwww4.ipdli... 2010/03/03

group, an amide group, an amino group, an aminooxy group, a KETOKISHI mate group, etc. As for a

anthon number of a hydrolytic basis which has a carbon atom among these, six or less are preferred, and four especially or less are preferred. In continue a sure preferred to the season are a with a carbon number of cour or less share efforcy group, aspecially a methoxy group and an ethoxy basis.

.0025]a is 1, 2, or 3 and it is preferred that it is especially 2 or 3.

OOOSBALA for a salk group shown by a amenal formula (a), it is preferred to average in a total terminal torsus and to contain not less than 10%.

OOTJAkhough a method in particular of introduction to a compound which has do overage to the COOSBALA contained by the contained to the contained to the contained and the contained to the contained to the contained by the contained to the contained to

\$1007/Minoushs a method in particular form did introduction to me, our own which has polevovalidyout chain by groups about the year, general formula (a) is not limited or empound which has polevovalidyout chain by shoring mithedus down they a general formula (b) is not limited with an one infraotosed, for example by the by the policy of the property of the prop

 $(0029]HS|X_aR_{3-a}-(b)$ It is the same as the above the inside R, X, and a of a formula)

And Age a method of practicalizing in office place. A constrond which has an unstantisting group and all strictional group in the constrond which has been all a functional group in control of proper of a compound which has and a functional group of a compound which has an experience of the control of proper of a compound which has a compound the control of proper of a compound which has a control of proper of the control of proper of the control of the confined and the control of the confined and the control of the confined and the control of the control

[0031](2) A method to which a compound expressed with en and of a compound which has polyoxalkylena by a general formula (6) is made to react.

3-2-SIX_-RINCO .. (a)

It is the same as the above the inside R, X, and a of a formula.) \mathbb{R}^1 is a divalent hydrocarbon group of the carbon numbers 1-17.

the carbon numbers 1–17. [103] A method twish Whatis of a silicon compound expressed with a general formula (d) to [1033] An entroid to which W basis of a silicon compounds, such as tobylene to iscoppounds, under the rest of the making pobliseoparate compounds, such as tobylene discoperate, resect to an ond of a compound which has polyocyalkylene and considering it as an

[0034]R_{3-a}-SiX_a-R¹W ... (d)

The inside R of a formula, R.¹, X, and a are the same as the above.) Active hydrogen containing group (The inside R of a formula, R.¹, X, and a are the same as the above.) Active hydrogen containing group, a carboxyl group, a sulfhydryl group, and an amino

group (the its dates or the 20x of oldss.).

The dates of the 20x of oldsselves and oldsselves of oldsselves oldsselves of oldsselves oldsse

opposition and the property of the sufficient of

GOROII, eseposially 0000-5000 are perfected, and 18000-9000 are esepatibly preferred. (2008)The constituent of this invention can contain further various bulling spects a softiere search ent. Athough general brings, such as colioum carbonate, basin, tale, furtiam oxide, aluminum silicate, and manch black, sea mentalioud as a bulling gent, appending in order to special purchasing ability system bulling agents, such as isolal and aluminum silicate, are preferred.

system bulking agents, such as keolin and aluminum sheate, are preferred. 1083]The amount used has the preferred range of zero to 300 weight section to hydrolytic silicon reprop contracts polymer 100 weight section.

(1047), as a paissiver a shiet (2017 (along) phalaeta). BBP (tutylenovy) phintains), a obderirated searffin, quantized solviens of and useall (other) and use it in the range of sero to 200 weight soilout its highest plant page content polymer? 100 weight seaton to the highest plant page content polymer? 100 weight seaton them is a table for a weight seaton (2017) hydrogeness onester of a single cold anything or organized pages in a statistic for a displant highest version is find of thing according to which an antiaging agent to assisting the an untraviolation highest version is find.

(DM1)Hydrogenation castor oil, a silicie ceid anhydride, or organic bentonita is suitable for a drópsing conservation silicie de fining sociorite to which an antistien a gent is classified into an ultraviolet my shochest, radical chain inhibitor, or a percoide decomposition agant — it can be independent, or it on use tagether end can use.

JP,05~039428,A [DETAILED DESCRIPTION]

OURCIPE, assess where a convertisementary-carding reputer constituent of an investor is used as for managed as attractural sealing material—one component types — or it is applicable to both of the model. So component types. When upon material reputer to sealing sealing with converting the other control of so component types. The control is adjusted with non-warry volve by a fanisher etc., and a container which can interescent contains its attracted and it manumentures. In a seas of two component types, it apparates into two and an ingredient which promotes a landoning, and the other ingredient for manufactured.

(10043)
[Example] Although the example of manufacture, an example, and a comparative example are concretely given to bolow and this invention is explained to it, this invention is not limited to these.

0044][The example of manufacture]

(Polymer A) The organic polymer which introduced the SIOH_(IOCH_y), group into the end of the princip reproprience polls of the moderale weight 1700 to which disrespience glycal wear made to add propylence oxide by the method given in IOP-27827A.
[IO45][Polymer B) The organic polymer which introduced the SIOH_(IOCH_y), group into the end of

the times relocuproplemen robol of the monetake weight 2000 to which giverin was mede to add propyleme oxide by the method given in 1/2 3-72827A. 2000 to which giverin was mede to add (DOM(S)/Deymor Of 17 method given in 1/2 3-72827A. 2000 to which give you have be innerposityon-ropoline polyol of the moletaler weight (DOMO to which disroportore dynoc was made to add propyleme oxide by the method given in 1/2 3-77255A.

(ceaule made from the Identitus petrodrimistry; the molecular weight 2400, the functional group number 2.2).
[046]The commiss of the hundenshilly constituent prepared below using above—mentioned polymer 1.2 shows manning and proper 2.2 and shows functioned 1.2 shows manning at shows a commission and cause 1.6 shows manning the shows a constraint we example (1048)To applymer 100 weight a cestions each shown it take 1. [Example 11.2 citations carbonate H.

molecular weight 10000 which made propylene oxide edd to hydrogenation polyisoprene system polyol

ntroduced the $-SICH_3(OCH_3)_2$ group into the end of the conversion oxypropylene compound of the

10. The shown Exemple 1-1 drawn arrange and Emerglas 8 shows a constantive seamed.
[0.048] to advance Transled 1-1 drawn arrange and Emerglas 8 shows as constantive seamed.
[0.048] to advance 10 weight section and shown in Table 1, [Exemple 1] Coticium anthomate 1.40 ministrate earlies, Active Resident 2007 and explicate seation. May dependent on the seater of the levels section, and emission general to weight section by the system in which meximizes the one of existing agents 1 weight section by the system in which meximizes the content of the special medium measures of the seater section with the section of mergin medium measures and section with the section of the system in which meximizes the content of the section of the secti

Proceeded uniformly, and cycle bardwarding conscienters are obtained.

(0050)[Examples 2-4] Except adding acid or alsel 03 weight section shown in Table 1 with a curring exablyst, the same operation is Example 1 was performed, and the handrenskilly contribuent was exablyst. The same operation is Example 1 was performed, and the handrenskilly contribuent was exabled. We also a section of 1051 (When H type spacinen was produced according to 415-5758 and it was reasperated for 14 (1051) When the type spacinen was produced according to 415-5758 and it was reasperated for 14 (1051) When the part of 1051 (When H type spacinen was produced according to 415-5758 and it was reasperated for 14 (1051) when the part of 1051 (1051) which is required to the part of 1051 (1051).

Table 1. [0053]The result of having set these hardoned materials in the state of 50 ** and 30% compression threformer for 4 hours, and having canceled the set continuously, and having massured the

[0052] The result of having examined by pulling at the rate of 50 mm/min about these is shown in

recovery is collectively shown in Table 1. [Object 1.8] and an alkali are as follows. [Object The ouring atalyst and acid which were used in Examples 1-8, and an alkali are as follows. [Object The ouring atalysts]

Ostalyst compound E: Bismuth tris (ethylhexanoate)
Catalyst compound F: Bismuth tris (neo decanoate)
Catalyst compound G: Octylic soid tin [0055](The acid or siksii)

Catalyst compound us Octylic and tin [U055](The acid of alkali) acid.—— capyl lactam acid—base nature substance: — lauryl amine [0056] [Table 1]

http://www4.ipdl.inpit.go.jp/ogi-bin/tran_web_ogi.gije?atw_u=http%3A%2F%2Fwww4.ipdl.i. 2010/03/03

œ	数のな	2.3	9.1	8	38	8
7	対し日報	3.7	12.3	ş	8	8
9	O H 編	4.3	9.8	220	8	8
9	B B 200	3.5	10.3	400	88	8
4	A F	2.4	11.3	92	83	83
60	< 51 ₹	1.2	10.9	92	88	88
00	A B 城	ei ei	11.6	770	78	8
1	∢ M I	2.1	9.8	022	22	æ
-	着合体の循版 設議内合物の鑑覧 数和・当型性物質	50%モジュラス (kg/cm²)	被新到底(kg/cu²)	伸び (米)	3時間後(%)	24時間後 (元)
	の業数	引颈肽酸精果 使元政				

(0007)
[Effect of the InventionThe hardenability constituent which has physical proporties outstanding by this invention is obtained. Enougation is improved as compared with what uses a the compound as a catalyst especially conventionally.

[Translation done.]

NOTICES *

langes caused by the use of this translation. JPO and INPIT are not responsible for any

This document has been translated by computer. So the translation may not reflect the original

**** shows the word which can not be translated. In the drawings, any words are not translated.

CORRECTION OR AMENDMENT

Kind of official gazette]Printing of amendment by regulation of 2 of Article 17 of Patent Law Section classification] The 3rd classification of the part III gate Publication date]July 27, Heisei 11 (1999)

Annual volume numbar] Publication of patent applications 5-395 Date of Publication] February 19, Haisei 5 (1993) Publication No.]JP,5-39428,A

Application number] Japanese Patent Application No. 3-219271 International Patent Classification (6th Edition)]

208L 101/10 KAR

208L 71/02 LOD 208K 5/09

308L, 101/10 KAR

39K 5/09

Written amendment] 208L 71/02 LGD

Filing date]July 22, Heisel 10 Amendment 1]

Document to be Amended Specification [tem(s) to be Amendad]Whole sentence Method of Amendment Change

Title of the Invention]Room-temperature-curing nature constituent Document Name Specification Proposed Amendment

Claim 1]A hydrolytic silicon group content polymer (A) which contains one hydrolytic silicon group even contains ten or less 0 weight-section super-weight sections of bismuth compounds (B) to (A)100 weight f small per one molecule of polymers, and a room-temperature-curing nature constituent which

Claim 2]A hydrolytic silicon group content polymer (A) which contains one hydrolytic silicon group even compound (B) to less than super-10 weight sections and (A)100 weight section to 100 weight sections 0 if small per one molecule of polymers, (A) A room-temperature-ouring nature constituent which contains acid or ten or less 0 weight-section super-weight sections of alkalis (C) for a bismuth

Claim 3] The room-temperature-curing nature constituent according to claim 1 or 2 whose hydrolytic

silicon group is a silicon functional group expressed with a following general formula.

nttp://www4.ipdl.inpit.go.jp/cgi-bin/tran.web_ogi_ejje?atw_u=http%3A%2F%2Fwww4.ipdl.inpi... 2010/03/04

As for a univalent hydrocarbon group or a halogenated hydrocarbon group, and X, in the inside of a [Claim 4]Claim 1, the room-temparature-ouring nature constituent according to <u>claim 2, or 3,</u> whosa <u>molecular waights</u> of a hydrolytic silicon group content polymer (A) are 2000-50000. formula, and R, a hydrolytic basis and a are the integers of 1, 2, or 3)

Industrial Application] This invention relates to the room-tamparature-curing nature constituent containing a hydrolytic silicon group content polymer. Detailed Description of the Invention]

Description of the Prior Art]If exposed into air moisture, the compound of the silicon functional group content organicity polymer which can be hardened to a rubber-like substance is used for a sealing 0003]On the other hand, it is already known that a bismuth compound is effective as a catalyst of material's etc. use.

However, the example used as a curing catalyst of a hydrolytic silicon group content polymer is not For example, it is indicated to JP.61-235420,A. cnown until now. urethane-izing

Problem(s) to be Solved by the Invention] As a catalyst which stiffens a hydrolytic silicon group content colymer at a room temperature conventionally, it is common to use the organic metal catalyst of tin and lead. Howavar, these catalysts are catalysts suitable for po<u>lyurethene</u> menufacture, and are not enough, and development of a new curing catalyst is deaired. [of the alongation of the hardened material

obtained when it is used as a curing catalyst of a hydrolytic silicon group contant polymer]

solved and it is small per one molecule of polymers, And a room-temperature-curing nature constituent which contains ten or less 0 weight-section super-weight sections of bismuth compounds (B) to (A)100 [0006]A hydrolytic silicon group content polymer (A) which contains one hydrolytic silicon group even if (C) for a bismuth compound (B) to less than super-10 weight sections and (A)100 weight section to 100 there is little this invention per one molecule of polymers again, (A) Provide a room-temperature-curing nature constituent which contains acid or ten or less 0 <u>weightr-section super-</u>weight sections of alkalis rydrolytic silicon group even if this invention is made that the above-mentioned problem should be Means for Solving the Problem]A hydrolytic silicon group content polymer (A) which contains one

0007]This time, it newly became clear that a bismuth compound was dramatically effective as a curing examination. Elongation is improved and a hardenability constituent which usas a bismuth compound (B) satalyst in a room temperature of a hydrolytic silicon group content polymer (A) as a result of weight sections 0 weight section.

0008]A reactant with organic carboxylic acid which it has 8-12 pieces preferably [bismuth salt which is indicated to JP,61-235420,A as a bismuth compound (B) used by this invention, and 2-20 carbon numbers] is mentioned. Specifically, there are bismuth tris (neo decanoate), bismuth tris (2as a curing catalyst also has few problems of safety.

ethylhexanoate), etc.

hydrolytic silicon group content polymer (A) 100 weight section, and especially 0.001 - 5 weight section facilitatory effect. When using acid or an alkali (G), the amount used is ten or less weight sections to 0010]in this invention, although a bismuth compound (B) may be used independently, it can also be used together with soid or an alkali (C). Concomitant use with soid or an alkali (C) has a hardening [0009]It is less than super—10 weight sections 0 weight section to hydrolytic silicon group content polymer (A) 100 weight section, the amount of bismuth compound (B) used has 0.01 − 5 preferred weight section, and especially its 0.01 - 3 weight section is preferred. is suitable for it. It is 0.01 to 3 weight section most preferably.

citrate, chloroacetio acid, acrylic acid, methacrylic acid, m-nitrobenzoic acid, or p-nitrobenzoic acid can 0011]Especially although organic acid or inorganic acid can be used as acid, an organic carboxylic acid compound is preferred. For example, acetic acid, propionic acid, caprolo acid, caprylic acid, stearic acid, usually use organic carboxylic acid of the carbon numbers 1-20. Solid acid, such as olay and aluminum .0012]Especially as an alkali, an organic amine compound's is preferred, and For example silicate, can be used as inorganic acid.

ttp://www4.ipdl.inpit.go.jp/ogi-bin/tran_web_ogi_ejje?atw_u=http%3A%2F%2Fwww4.ipdl.inpit.. 2010/03/04

N.N.N.N"V-tatramethylethylenediamine, triethylamina, N.N-dimethylaniine, dimethylbenzyl aniline, etc. can lietrylanetriamine, Triethylenetetramine, tetraethylanepentamine, a butylamine, Hexylamine, octylamine, J.N.N.N"-tetramethy! 1,3-butanediamine, Benzylamine, dimathylethylenediamine, dimethylamino ethanol, decyl amine, lauryl amine, Hexamethylenadiamine, triethanolamine, dibutyl amine, Diethanolamine,

(0013)As a hydrolytic silicon group content polymer (A) of this invention, various polymers which have one or more hydrolytic silicon groups among one molecule and in which a main ohain consists of obyether or polyester intrinsically can be used. A compound specifically indicated in the following iterature is montioned. group into JP,46-12514,B, JP,3-47825,A, and JP,3-72527,A by a method which is stated to an end of a polyoxyalkylene compound below is indicated. [0015]A polymer of polyglycol which has at the end the hydrolytic silicon group combined with JP.45=

0014]For example, a hydrolytic silicon group content polymer which introduced a hydrolytic silicon

0016]To JP,3-79627,A, what introduced a hydrolytic silicon group into a copolymer of monocpoxide, such as alkylene oxide, and unsaturation group content mencepoxide, such as ally! glycidy! ether, is 6319,B by specific bond groups, or a polyester system is indicated.

connection with application of these people) of the molecular waights 300-30000 can be used with a polyfutadiene. To a polymer obtained, a hydrolytic silicon group. A hydrolytic silicon group content olymar (refer to the Japanese-Patant-Application-No. No. 110588 [two to] specification in .0017]Furthermore, Alkylene oxida, such as propylene oxide, is added to hydroxyl group end

oolymer chain which main chains, such as what was introduced, have the residue of liquid rubber and/or oolyoxyalkylene chain intrinsically or has polyoxyalkylene chain in a side chain is preferred. A hydrolytic 0018]As for a main chain of a hydrolytic silicon group content polymer (A), what consists of ydrogenation liquid rubber, and has a polyather chain.

cyanide complex catalyst, and metalloporphyrin, and it is manufactured. As for a functional group number alkylene oxide, etc. are made to react to initiators, such as a hydroxy compound which has at least one silicon group content polymer introduces a hydrolytic silicon group into a compound which has such [0019]Polyoxyalkylene chain of a compound which has polyoxyalkylene chain, Monoepoxide, such as of a compound which has polyoxyalkylene chain, two or more are preferred, and 2 or 3 is especially nydroxyl group under existence of catalysts, such as an alkaline metal catalyst, a composite metal polyoxyalkylene chain and has a functional group, and is manufactured.

0020]Especially a desirable compound is a compound which has a polyoxypropylene chain and has two 0021]When using for a method of following (1), a polyoxyalkylana compound of olefin ends, such as an pieces or three hydroxyl groups. Specifically, it is a propylene oxide adduct of polyoxypropylene diol. 0022]As a hydrolytic silicon group introduced into a compound which has the above-mentioned oolyoxyalkylene chain, a silyl group expressed with a ganeral formula (a) is good. obyoxypropylene triol, liquid rubber, and/or hydrogenation liquid rubbar, atc. illyl end polyoxypropylene monooar, can also be used.

.0024]X is a hydrolytic basis, for example, there are a halogen atom, an alkoxy group, an acyloxy group. 0023]The inside R of a formula is a univalent hydrocarbon group or a halogenated hydrocarbon group. number of a hydrolytic basis which has a carbon atom among these, six or less are preferred, and four and eight, or less carbon number is six or less alkyl group and a fluoro alkyl group preferably. They are especially or loss are preferred. Desirable hydrolytic bases are a with a carbon number of four or less an amide group, an amino group, an aminooxy group, a KETOKISHI mate group, etc. As for a carbon low-grade alkyl groups, such as a methyl group and an ethyl group, especially preferably. ower alkoxy group, especially a methoxy group and an ethoxy basis. - SiX, R3, ... (a)

0027JANthough a method in particular of introduction to a compound which has polyoxyalkylene chain of silyi group expressed with a general formula (a) is not limited, it can ba introduced, for example by the [0025]a is 1, 2, or 3 and it is preferred that it is especially 2 or 3. [0026]As for a silyl group expressed with a general formula (a), it is preferred to average in a total erminal group and to contain not less than 70% preferably not less than 50%.

http://www4.ipdl.inpit.go.jp/cgi-bin/tran_web_cgi_ejje?atw_u=http%3A%2F%2Fwww4.ipdJ.inpi... 2010/03/04

0028](1) A method to which a hydrosilyl compound expressed with an end of a compound which has polyoxyalkylena chain by a general formula (b) that an olefin group was introduced is made to react.

(It is the same as the above the inside R, X, and a of a formula) .0029]HSiX,R3-, (b)

polyoxyalkylene, How to combine by ether bond, ester bond, a urethane bond, carbonate combination, etc., Or when polymenizing alkylene oxide, a method of introducing an olefin group into a side ohain, etc. '0030]As a method of introducing an olefin group here, A compound which has an unsaturation group and a functional group is made to react to terminal hydroxyl groups of a compound which has are mentioned by adding and carrying out copolymerization of the olefin group content epoxy

0031](2) A method to which a compound expressed with an end of a compound which has oolyoxyalkylene by a general formula (c) is made to react.

compounds, such as allyl glycidyl ether.

R3 -SIX -RINCO ... (c)

(It is the same as the above the inside R, X, and a of a formula.) R is a divalent hydrocarbon group of

,0033](3) A method to which W basis of a silicon compound expressed with a general formula (d) to this socyanate group is made to react after making polyisocyanate compounds, such as tolylene dilsocyanate, react to an and of a compound which has polyoxyalkylene and considering it as an the carbon numbers 1-17.

0034]R_{3-a}-SiX_a-R¹W ... (d)

The inside R of a formula, R1, X, and a are the same as the above.) Active hydrogen containing group as which W was chosen from a hydroxyl group, a carboxyl group, a sulfhydryl group, and an amino group the 1st class or the 2nd class).

polyoxyalkylene and to which the olefin group and a sulfhydryl group of a silicon compound expressed 0035](4) A method which introduces an olefin group into an end of a compound which has with a general formula (d) whose W is a sufflydryl group are made to react.

(0037]As for a molecular weight of a hydrolytic silicon group content polymer (A) in this invention, 2000-[0036]If a hydrolytic silicon group content polymer (A) in this invention contacts moisture, it will threedimension-ize by crosslinking reaction, and it will be hardened.

etc. Although general things, such as calcium carbonate, kaclin, talc, titanium oxide, aluminum silicate, or carbon black, are mentioned as a bulking agent, especially in order to spaad up hardening, acid system (0038)The constituent of this invention can contain further various bulking agents, an additive agent, 50000, especially 6000-50000 are preferred, and 16000-30000 are the most preferred. bulking agents, such as kaolin and aluminum silicate, are preferred.

[0039]Although these are not indispensable, the amount of [in case used of using it] has a preferred range not more than super-300 weight sections 0 weight section to hydrolytic silloon group content 0040]As a plasticizer, a thing DOP (dicetyl phthalate), BBP (butylbenzyl phthalate), a chlorinated paraffin, epoxidized soybean oil, and usual [other] can use it in not more than super-200 weight polymer (A) 100 weight section.

example, a structural scaling material — one component type — or it is applicable to both of the molds 0041]Hydrogenation castor oil, a silicic acid anhydride, or organic bentonitc is suitable for a dripping classified into an ultraviolet ray absorbent, radical chain inhibitor, or a peroxide decomposition agent 2 component types. When using one component type, this constituent is prepared by a kneader etc. 0042]a case where a room-temperature-curing nature constituent of this invention is used as for manufactures. In the case of two component types, it separates into two and an ingredient which inhibitor. An antiaging agent is independent, or can use together and use various kinds of things according to non-watery voice, and a container which can intercept moisture is stuffed and it sections 0 weight section to hydrolytic silicon group content polymer (A) 100 weight section. promotes hardening, and the other ingredient are manufactured. [Example]Atthough the example of manufacture, an example and a connearable example are concretely experience between the two belowers and this invention is explained to it, this invention is not limited to these. [Od44]The example of manufacture]

ittp://www4.ipdl.inpit.go.jp/ogi-bin/tran_web_ogi_ejje?atw_u=http\$3A\$2F%2Fwww4.ipdl.inpi... 2010/03/04

œ

S

4

က

O

Z

Polymer A) The organic polymer which introduced the -SiCH₃(OCH₃) ₂ group into the end of the linear polyoxypropylene polyol of the molacular weight 17000 to which dipropylane glycol was made to add

0045](Polymer B) The organic polymer which introduced the "SiCH₃(OCH₃) 2 group into the and of the inear polyoxypropylene polyol of the molecular weight 22000 to which glycerin was made to add propylene oxide by the method given in JP,3-72527,A.

odyoxypropylene polyol of the molecular weight 10000 to which dipropylene glycol was made to add 0046](Polymer C) The organic polymer which introduced the -SiCH₃(OCH₃) ₂ group into the linear propylene oxide by the method given in JP.3-72527.A. propylene oxide by the method given in JP,3-47825.A.

0048]The example of the hardenability constituent prepared below using above-mentioned polymer A-D epaule made from the Identisu petrochemistry; the molecular weight 2400, the average functional group nolecular weight 10000 which made propylene oxide add to hydrogenation polyisoprene system polyol ntroduced the -SiGH₃(OCH₃) ₂ group into the end of the conversion oxypropylene compound of the 0047](Polymer D) By the method of a statement, to JP,2-110588,A. The organic polymer which umber 22).

2.2

3,7

4.3

. 2

2.4

2.1

2.3

2.1

50%モジュラス

(kg/cm²)

兴 尨 雄

氢基

OB 9

E

М

塩基

∢ 14

A H

触媒化合物の種類

重合体の種類

發性·塩基性物質

9.1 480 ജ 8

12,3

9.8 ê 95

10.3

11.3

10.9

11.6

9.8 23

破断強度(kg/cm²)

\$ 8

8 8

ß \$

8 ဆ

23 83

第2年(%)

쬬

3時間後(%)

castor oil 6 weight section, and antiaging agent 1 weight section by the system in which moisture does not exist substantially, one weight section of curing catelysts shown in Table 1 were added, it kneaded weight section, After knaading DOP30 weight section, titanium oxide 20 weight section, hydrogenation 0049]To polymer 100 weight sections each shown in Table 1, [Example 1] Calcium carbonate 140 s shown. Examples 1-7 show an example and Example 8 shows a comparative example.

[0050][Examples 2-8] Except adding soid or alkali 0.3 weight section shown in Tabla 1 with a ouring uniformly, and the hardenability constituent was obtained.

[0051]When H type specimen was produced according to JIS-A5758 and it was recuperated for 14 days batalyst, the same operation as Example 1 was performed, and the hardenability constituent was phtained

under 23 ** and 60% humidity atmosphere using the constituent obtained in Examples 1-8, the rubber-0052] The result of having examined by pulling at the rate of 50 mm/min about these is shown in Table like elasticity object which hardened thoroughly to the inside in any case was acquired.

furthermore for 24 hours, and having canceled the set continuously, and having measured the recovery 0053]The result of having set these hardened materials in the state of 50 ** and 30% compression is collectively shown in Table 1.

0054]The curing catalyst and acid which were used in Examples 1-8, and an alkali are as follows.

Catalyst compound E: Bismuth tris (2-athylhexanoate) Catalyst compound F: Bismuth tris (neo decancate)
Catalyst-compound G: 2-ethylhexanoic acid tin

(0055](The acid or alkali) Acid: Caprylic acid Alkali: Lauryl amine

Table 1

[Effect of the Invention]The hardenability constituent which has physical properties outstanding by this invention is obtained. Elongation is improved as compared with what uses a tin compound as a catalyst

(Translation done.)

especially conventionally.

.

2010/03/04

http://www4.ipdl.inpit.go.jp/ogi~bin/tran_web_ogi_ejje?atw_u~http%3A%2F%2Fwww4.ipdl.inpi...